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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,422	07/02/2003	Young-sun Chun	1293.1786	2563

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EXAMINER

HUFFMAN, JULIAN D

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/611,422	Applicant(s) CHUN, YOUNG-SUN	
	Examiner Julian D. Huffman	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5, 11, 18 and 19 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-10, 12-17 and 20-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 19 June 2006 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 13 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Haselby et al. (U.S. 5,250,956).

Haselby et al. discloses:

With regards to claim 13, an apparatus (fig. 6) for measuring an image alignment error for image formation in an image forming apparatus having a carriage (fig. 6), the apparatus comprising:

a test marking print-directing unit (element 45) which prints first and second test marks on a printing medium according to a designated error distance (fig. 13a, designated error distance is 0, column 14, lines 37-45);

an error distance detecting unit which detects only the first and second test marks for compensating for the image alignment error according to the detected the first and second test marks (65, column 14, lines 37-45, if the detected error distance is different from the designated error distance, an error is detected).

With regards to claim 22, a method of measuring an image alignment error for image formation in an image forming apparatus having a carriage (fig. 6), the method comprising:

printing only first and second test marks on a printing medium according to a designated error distance (fig. 13 and column 14, lines 37-45); and

detecting only the first and second test marks for compensating for the image alignment error according to the detected the first and second test marks (column 14, lines 37-45).

4. Claims 7-10, 12-15, 20 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Ikeda (U.S. 6,607,260 B1).

Ikeda discloses:

With regards to claim 7, an apparatus for measuring image alignment errors for image formation in an image forming apparatus having a carriage (fig. 1, abstract), the apparatus comprising:

a test mark print-directing unit (fig. 3) which directs the carriage to print two test marks (figs. 1 and 4, a-F and a-R) separated from each other by a designated error distance (0) on a printing medium on which images are printed (column 13, lines 57-65, column 14, lines 13-30);

a test mark sensing unit (fig. 3, element 1) which senses only the two test marks for the measuring of image alignment error (the sensor is capable of sensing only the two test marks), and outputs a sensed result of the two test marks (column 13, lines 39-42, column 14, lines 44-46 and 52-55);

a reference clock generating unit (fig. 3, element 7) which generates a reference clock and outputs the generated reference clock (column 13, lines 47-48);

a sensed instant of time measuring unit (fig. 3, counter, element 9) which compares the sensed result of the two test marks with the generated reference clock to measure instants of time when the two test marks are sensed according to a movement of the carriage, and outputs the measured instants of time (column 13, lines 48-50, column 14, line 63-column 15, line 10); and

an error distance detecting unit (fig. 3, element 13) which detects an actual error distance of the two test marks using the measured instants of time and a moving speed of the carriage and outputs the detected actual error distance (column 13, lines 51-53 and column 15, lines 6-40).

With regards to claims 8 and 9, the test mark print-directing unit directs the carriage to print each of the two test marks on the printing medium using different image printing methods or in different printing directions (first mark is printed in first direction which is a first printing method and second mark is printed in second direction which is a second printing method, column 14, lines 18-22).

With regards to claim 10, the error distance detecting unit (fig. 3, element 13) detects a time difference between the measured instants of time of the two test marks and multiplies the detected time difference by the moving speed of the carriage to output the detected actual error distance (column 15, line 26).

With regards to claim 12, an image alignment correction value detecting unit (fig. 3, element 13) which obtains a distance difference between the designated error distance and the actual error distance, detects an image alignment correction value from the distance difference, and outputs the detected image alignment correction value to compensate for the image alignment errors (column 15, lines 6-39).

With regards to claim 13, Ikeda discloses an apparatus for measuring an image alignment error for image formation in an image forming apparatus having a carriage (fig. 1, abstract), the apparatus comprising:

a test mark print-directing unit (fig. 3) which prints first and second test marks on a printing medium (figs. 1 and 4, a-F and a-R) according to a designated error distance (column 13, lines 57-65, column 14, lines 13-30); and

an error distance detecting unit (fig. 1, element 13) which detects only the first and second test marks for compensating for the image alignment error according to the

detected the first and second test marks (the error distance detecting unit/optical sensor is capable of operating in the manner claimed).

With regards to claim 14, an apparatus for measuring an image alignment error for image formation in an image forming apparatus having a carriage (fig. 1, abstract), the apparatus comprising:

a test mark print-directing unit (fig. 3) which directs the carriage to print first and second test marks (figs. 1 and 4, a-F and a-R) on a printing medium according to a designated error distance (column 13, lines 57-65, column 14, lines 13-30);

a test mark sensing unit (fig. 3, element 1) which senses only the first and second test marks (the test mark sensing unit is capable of detecting only the two marks), for the measuring of image alignment error, and outputs first and second sensed results of the first and second test marks (column 13, lines 39-42, column 14, lines 44-46 and 52-55);

a sensed instant of time measuring unit (fig. 3, element 7) which measures instants of time when the first and second test marks are sensed, according to the first and second sensed results, and outputs the measured instants of time (column 13, lines 48-50, column 14, line 63-column 15, line 10); and

an error distance detecting unit (fig. 3, element 13) which detects an actual error distance of the first and second test marks using the measured instants of time to compensate for the image alignment error according to the detected actual error distance of the first and second test marks (column 13, lines 51-53 and column 15, lines 6-40).

With regards to claim 15, a reference clock generating unit (fig. 3, element 7) which generates a reference clock, wherein the sensed instant of time measuring unit generates the measured instants of time according to the sensed result of the first and second test marks and the generated reference clock (column 13, lines 48-50, column 14, line 63-column 15, line 10).

With regards to claim 20, the carriage moves in a first direction, the printing medium moves in a second direction, and the first and second test marks are printed in one of the first and second directions (fig. 1).

With regards to claim 21, the carriage moves with respect to the printing medium to print an image in another printing direction according to a difference between the actual error distance and the designated error distance (column 15, lines 31-39).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4, 6, 16, 17 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haselby in view of Ikeda.

Haselby discloses:

With regards to claims 1 and 23 a method of measuring an image alignment error for image formation in an image forming apparatus having a carriage (fig. 6), the method comprising:

directing the carriage to print first and second test marks on a printing medium according to a designated error distance (fig. 13a);

sensing only the first and second test marks, for the measuring of the image alignment error, to output first and second sensed results of the first and second test marks;

detecting an actual error distance of only the first and second test marks to compensate for the image alignment error (column 14, lines 37-45).

With regards to claims 2 and 3, printing the two test marks using different image printing methods in different printing directions (fig. 13a).

With regards to claim 6, detecting an image alignment correction value by obtaining a distance difference between the designated error distance and the actual error distance (column 14, lines 37-45).

With regards to apparatus claims 16 and 17, Haselby discloses the claimed apparatus as evident from the discussion of the method claims above.

Haselby et al. does not disclose how the positions of the marks are determined.

Ikeda discloses measuring instants of time when marks are sensed to output measured instants of time and detecting an error distance using the measured instants of time (column 13, lines 48-50, column 14, line 63-column 15, line 10) and a moving speed of the carriage by multiplying the detected time difference by the moving speed of the carriage to generate the actual error distance (column 15, lines 6-39).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Haselby to measure the instants of time to detect the error distance in the manner suggested by Ikeda for the purpose of accurately correcting the recording position of images recorded in forward and backward directions (column 2, lines 36-43).

Allowable Subject Matter

7. Claims 5, 11, 18 and 19 are allowed.

Response to Arguments

8. Applicant's arguments filed 19 June 2006 have been fully considered but they are not persuasive.

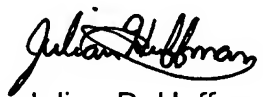
The majority of applicant's arguments were addressed in the advisory action mailed 10 July 2006. Any arguments not addressed therein are deemed moot in view of a new grounds of rejection.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian D. Huffman whose telephone number is (571) 272-2147. The examiner can normally be reached on 10:00a.m.-6:30p.m. Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Julian D. Huffman
Art Unit 2853
27 September 2006